

**Amendments to the Claims**

Please cancel Claims 31-33 and 35-37. The Claim Listing below will replace all prior versions of the claims in the application:

**Claim Listing**

1. (previously presented): A packaging cell line comprising:
  - a) a mammalian cell;
  - b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for a HIV *gagpol* and lacks coding sequences for HIV accessory proteins, Rev response element and constitutive transport elements;
  - c) a second retroviral nucleotide sequence in the cell which comprises the coding sequence for a heterologous envelope protein; and
  - d) a third retroviral nucleotide sequence in the cell which comprises a DNA sequence of interest and HIV cis-acting sequences required for packaging, reverse transcription and integration, wherein said packaging cell line produces a HIV-derived retroviral vector particle.
2. (original): A packaging cell line of Claim 1 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).
3. (original): A packaging cell line of Claim 1 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.
4. (canceled)
5. (previously presented): A packaging cell line comprising:
  - a) a mammalian cell;
  - b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for a HIV *gagpol* and lacks coding sequences for HIV accessory proteins, Rev response element and constitutive transport elements; and

- c) a second retroviral nucleotide sequence in the cell which comprises a DNA sequence of interest and HIV cis-acting sequences required for packaging, reverse transcription and integration.
- 6. (canceled)
- 7. (previously presented): A packaging cell line comprising:
  - a) a mammalian cell;
  - b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for a HIV *gagpol* and lacks coding sequences for HIV accessory proteins, Rev response element and constitutive transport elements; and
  - c) a second retroviral nucleotide sequence in the cell which comprises the coding sequence for a heterologous envelope protein.
- 8. (previously presented): A method of producing a packaging cell line which produces a HIV-derived retroviral vector particle, comprising co-transfecting mammalian host cells with:
  - a) a first plasmid comprising a codon optimized DNA sequence which encodes HIV *gagpol* proteins and lacks DNA sequences encoding HIV accessory proteins, Rev response element and constitutive transport elements;
  - b) a second plasmid comprising a DNA sequence which encodes a heterologous envelope protein; and
  - c) a third plasmid comprising a DNA sequence of interest and HIV cis-acting sequences required for packaging, reverse transcription and integration, thereby producing a packaging cell line which produces a HIV-derived retroviral vector particle.
- 9. (original): A method of Claim 8 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).

10. (original): A method of Claim 8 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.
11. (canceled)
12. (previously presented): A method of producing a HIV-derived retroviral vector particle comprising the steps of:
  - a) co-transfecting mammalian host cells with:
    - i) a first plasmid comprising a codon optimized DNA sequence which encodes HIV *gagpol* proteins and lacks DNA sequences encoding HIV accessory proteins, Rev response element and constitutive transport elements;
    - ii) a second plasmid comprising a DNA sequence which encodes a heterologous envelope protein; and
    - iii) a third plasmid comprising a DNA sequence of interest and HIV cis-acting sequences required for packaging, reverse transcription and integration,
  - b) maintaining the transfected cells under conditions suitable for virus particle production; and
  - c) recovering virus particle produced in step b).
13. (original): A method of Claim 12 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).
14. (original): A method of Claim 12 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.
15. (canceled)
16. (previously presented): A packaging cell line comprising:
  - a) a mammalian cell;

- b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for a lentivirus *gagpol* and lacks coding sequences for lentivirus accessory proteins, Rev response element and constitutive transport elements;
  - c) a second retroviral nucleotide sequence in the cell which comprises the coding sequence for a heterologous envelope protein; and
  - d) a third retroviral nucleotide sequence in the cell which comprises a DNA sequence of interest and lentivirus cis-acting sequences required for packaging, reverse transcription and integration,
- wherein said packaging cell line produces a lentivirus-derived retroviral vector particle.
17. (original): A packaging cell line of Claim 16 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).
18. (original): A packaging cell line of Claim 16 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.
19. (canceled)
20. (previously presented): A packaging cell line comprising:
- a) a mammalian cell;
  - b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for lentivirus *gagpol* and lacks coding sequences for lentivirus accessory proteins, Rev response element and constitutive transport elements; and
  - c) a second retroviral nucleotide sequence in the cell which comprises a DNA sequence of interest and lentivirus cis-acting sequences required for packaging, reverse transcription and integration.
21. (canceled)

22. (previously presented): A packaging cell line comprising:
- a) a mammalian cell;
  - b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for lentivirus *gagpol* and lacks coding sequences for lentivirus accessory proteins, Rev response element and constitutive transport elements; and
  - c) a second retroviral nucleotide sequence in the cell which comprises the coding sequence for a heterologous envelope protein.
23. (previously presented): A method of producing a packaging cell line which produces a lentivirus-derived retroviral vector particle, comprising co-transfecting mammalian host cells with:
- a) a first plasmid comprising a codon optimized DNA sequence which encodes lentivirus *gagpol* proteins and lacks DNA sequences encoding lentivirus accessory proteins, Rev response element and constitutive transport elements;
  - b) a second plasmid comprising a DNA sequence which encodes a heterologous envelope protein; and
  - c) a third plasmid comprising a DNA sequence of interest and lentivirus cis-acting sequences required for packaging, reverse transcription and integration, thereby producing a packaging cell line which produces a lentivirus-derived retroviral vector particle.
24. (original): A method of Claim 23 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).
25. (original): A method of Claim 23 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.
26. (canceled)

27. (previously presented): A method of producing a lentivirus-derived retroviral vector particle comprising the steps of:
- a) co-transfecting mammalian host cells with:
    - i) a first plasmid comprising a codon optimized DNA sequence which encodes lentivirus *gagpol* proteins and lacks DNA sequences encoding lentivirus accessory proteins, Rev response element and constitutive transport elements;
    - ii) a second plasmid comprising a DNA sequence which encodes a heterologous envelope protein; and
    - iii) a third plasmid comprising a DNA sequence of interest and lentivirus cis-acting sequences required for packaging, reverse transcription and integration,
  - b) maintaining the transfected cells under conditions suitable for virus particle production; and
  - c) recovering virus particle produced in step b).
28. (original): A method of Claim 27 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).
29. (original): A method of Claim 27 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.
- 30-49. (canceled)